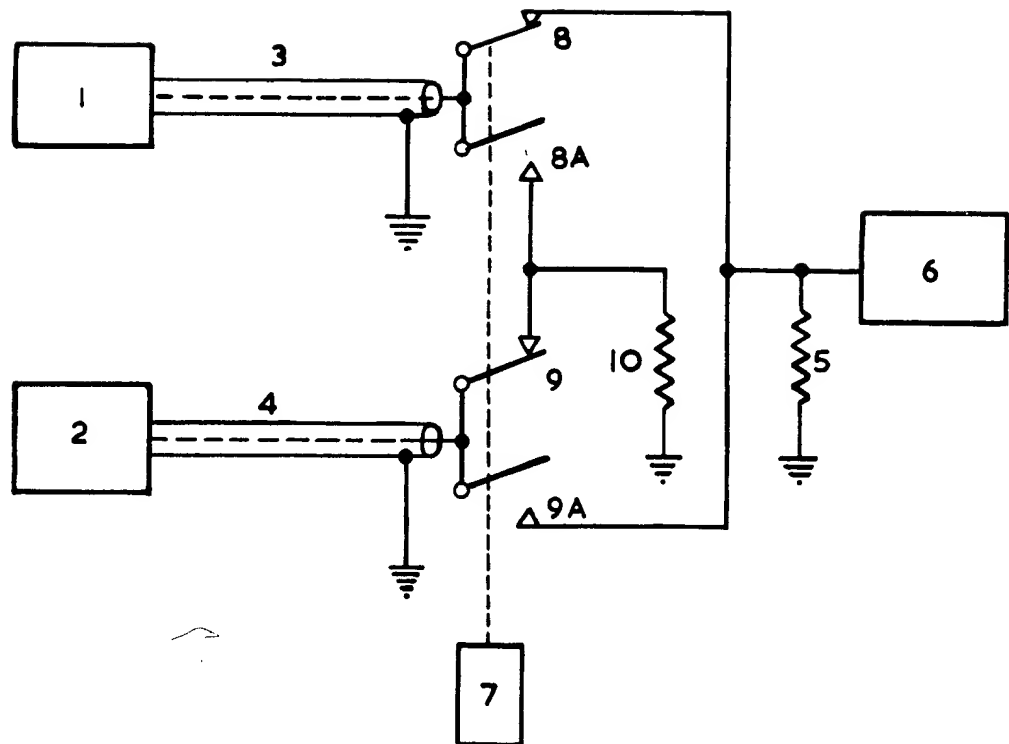


801062
1 SHEET

PROVISIONAL SPECIFICATION
This drawing is a reproduction of
the Original on a reduced scale



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PATENT SPECIFICATION

Inventor : GILBERT NICHOLLS

801062



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COMPLETE SPECIFICATION

Improvements in or relating to Signal Selection Circuits

We, RANK CINTEL LIMITED, formerly CINEMA-TELEVISION LIMITED, a British Company, of 11, Belgrave Road, London, S.W.1., do hereby declare the invention, for which

5 we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to improvements in signal selection circuits and is more especially concerned with input circuits for amplifiers or the like which are required to be fed alternatively with signals which are fed to the amplifier from two sources through transmission lines requiring to be terminated by their characteristic impedance.

15 A difficulty which arises in an arrangement of this kind is that the operation of changing over from one signal source to the other produces an abrupt increase in the signal level during the period when both cables are connected to the amplifier or an absence of input signal when neither signal is so connected. The present invention seeks to overcome this difficulty.

20 According to the present invention there is provided a circuit arrangement comprising switch means, operable to connect one or other or both of two transmission lines to a first matching impedance across which the selected signal is developed, and to connect one or other or both said transmission lines to a second matching impedance, said switch means being normally in a condition in which 30 one of said transmission lines is terminated by said first matching impedance and the other of said transmission lines is terminated by said second matching impedance and means for ensuring that upon the initiation of a changeover operation said switch means operate first to connect each of said transmission lines to both said matching impedances and thereafter to disconnect said one transmission line from said first matching impedance and said other transmission line from said second matching impedance.

[Price 3s. 6d.]

The arrangement according to the present invention provides the advantage that when the two signal sources are connected in parallel the impedance across which the output signal appears is halved in value, so preventing the otherwise inevitable rise in signal voltage across said first matching impedance.

Where the transmission lines used are of the kind comprising a single line conductor and an earthed sheath (coaxial lines) only a single change-over switch is necessary for each line and one end of each matching impedance will be earthed. Where balanced transmission lines are used two switches will be necessary for each line.

The present invention will now be more fully described with reference to the drawing accompanying the Provisional Specification which shows by way of example one embodiment of a signal selecting circuit according to the invention.

In the drawing, signals from sources indicated at 1 and 2 are fed by way of coaxial cables 3 and 4 to a resistance 5, having a value equal to the modulus of the characteristic impedance of cables 3 and 4, signals appearing across which are fed to a utilization device 6. Changeover from one source to the other is effected by operating relay 7. When this relay is in its released condition, cable 3 is connected to resistor 5 while cable 4 is terminated by a second resistor 10 of equal value.

To prevent any abrupt change in signal level during changeover from one signal source to the other relay contacts 8, 8A and 9, 9A are so arranged that contact 8A makes before contact 8 breaks and contact 9A makes before contact 9 breaks. Thus as relay 7 operates the two cables 3, 4 are first connected in parallel to resistors 5 and 10 and then, as the break contacts open, cable 4 is left connected to resistor 5 while cable 3 is now terminated by resistor 10.

It is of course possible to evolve other arrangement of relay or switch contacts to

carry out the same switching sequence if for any reason this should be desirable. The arrangement described has however the advantage that it permits an advantageous physical separation of cables 3, 4, so far as may be achieved when a single relay is used. If a further separation is required it will be necessary to use two relays.

WHAT WE CLAIM IS:—

- 10 1. A circuit arrangement comprising switch means, operable to connect one or other or both of two transmission lines to a first matching impedance across which the selected signal is developed, and to connect
15 one or other or both said transmission lines to a second matching impedance, said switch means being normally in a condition in which one of said transmission lines is terminated by said first matching impedance and the
20 other of said transmission lines is terminated by said second matching impedance and means for ensuring that upon the initiation of a changeover operation said switch means operate first to connect each of said trans-
25 mission lines to both said matching impedances and thereafter to disconnect said one transmission line from said first matching impedance and said other transmission line from said second matching impedance.
- 30 2. A circuit arrangement according to Claim 1 in which the switch means comprises

relay contacts.

3. A circuit arrangement according to Claim 2 in which all said contacts are operated by a single relay.

4. A circuit arrangement according to Claim 3 in which each of said contacts is a make-before-break contact or the equivalent of which the moving element is connected to one of said transmission lines and each of the fixed contacts is connected to a separate one of said matching impedances.

5. A circuit arrangement according to Claim 3 or Claim 4 in which transmission lines are coaxial lines, the outer conductors of which are connected to earth, as is one terminal of each of said matching impedances.

6. A circuit arrangement according to any of the preceding claims in which each of said matching impedances comprises a resistance having an ohmic value equal to the modulus of the characteristic impedance of said transmission lines.

7. A circuit arrangement substantially as hereinbefore described with reference to the drawing accompanying the Provisional Specification.

C. FALCONER CHAPTER,
Chartered Patent Agent,
For the Applicants.

PROVISIONAL SPECIFICATION

Improvements in or relating to Signal Selection Circuits

We, CINEMA - TELEVISION LIMITED, a British Company, of 11, Belgrave Road, London, S.W.1., do hereby declare this invention to be described in the following statement:—

This invention relates to improvements in signal selection circuits and is more especially concerned with input circuits for amplifiers or the like which are required to be fed alternatively with signals which are fed to the amplifier from two sources through transmission lines requiring to be terminated by their characteristic impedance.

A difficulty which arises in an arrangement of this kind is that the operation of changing over from one signal source to the other produces an abrupt increase in the signal level during the period when both cables are connected to the amplifier or an absence of input signal when neither signal is so connected. The present invention seeks to overcome this difficulty.

According to the present invention there is provided a circuit arrangement for selecting a signal from one or other of two transmission lines requiring to be terminated by a common characteristic impedance, comprising a first switch means operable to connect one or other or both of said transmission lines to a first matching impedance across which the selected signal is developed, a

second switch means operable to connect one or other or both said transmission lines to a second matching impedance, said switch means being normally in a condition in which one of said transmission lines is terminated by said first matching impedance and the other of said transmission lines is terminated by said second matching impedance and means for ensuring that upon the initiation of a changeover operation said switch means operate so as first to connect each of said transmission lines to both said matching impedances and thereafter to disconnect said one transmission line from said first matching impedance and said other transmission line from said second matching impedance.

The arrangement according to the present invention provides the advantage that when the two signal sources are connected in parallel the impedance across which the output signal appears is halved in value, so preventing the otherwise inevitable rise in signal voltage across said first matching impedance.

The present invention will now be more fully described with reference to the accompanying drawing which shows by way of example one embodiment of a signal selecting circuit according to the invention.

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cables 3 and 4 to a resistance 5, having a value equal to the modulus of the characteristic impedance of cables 3 and 4, signals appearing across which are fed to a utilization device 6. Changeover from one source to the other is effected by operating relay 7. When this relay is in its released condition, cable 3 is connected to resistor 5 while cable 4 is terminated by a second resistor 10 of equal value.

To prevent any abrupt change in signal level during changeover from one signal source to the other relay contacts 8, 8A and 9, 9A are so arranged that contact 8A makes before contact 8 breaks and contact 9A makes before contact 9 breaks. Thus as relay 7 operates the two cables 3, 4 are first

connected in parallel to resistors 5 and 10 and then, as the break contacts open, cable 4 is left connected to resistor 5 while cable 3 is now terminated by resistor 10.

It is of course possible to evolve other arrangements of relay or switch contacts to carry out the same switching sequence if for any reason this should be desirable. The arrangement described has however the advantage that it permits an advantageous physical separation of cables 3, 4.

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